

# **Understanding Cisco Data Center Foundations (DCFNDU) V1.0 - On Demand**

**Modality:** On Demand

**Duration:** 40 Hours

**CLC:** 15 Units

## **Course Information**

### **About this course:**

This course will prepare you for entry-level data center roles.

The course will teach you the foundational knowledge and skills you need to configure Cisco data center technologies, including SAN networking, virtualization, networking and unified computing. You will get hands-on experience with configuring features on Cisco Nexus® Operating System (Cisco NX-OS) and Cisco Unified Computing System™ (Cisco UCS®). You will also get an introduction to Cisco Application Centric Infrastructure (Cisco ACI™), cloud computing and automation.

### **Course Objective:**

You will be equipped with following skills after taking this course:

- Describe the foundations of data center networking
- Describe Cisco UCS Manager
- Describe the purpose and advantages of application programming interfaces (APIs)
- Describe Cisco ACI
- Describe the basic concepts of cloud computing
- Describe Cisco Nexus products and explain the basic Cisco NX-OS functionalities and tools
- Describe Layer 3 first-hop redundancy
- Describe Cisco Fabric Extender (FEX) connectivity
- Describe N-Port Virtualization (NPV) and N-Port Identifier Virtualization (NPIV)
- Describe data center Ethernet enhancements that provide a lossless fabric
- Describe Fibre Channel over Ethernet (FCoE)
- Describe data center server connectivity
- Describe Ethernet port channels and virtual port channel (vPCs)
- Introduce switch virtualization, machine virtualization, and network virtualization
- Compare storage connectivity options in the data center
- Describe Fibre Channel communication between the initiator server and the target storage
- Describe Fibre Channel zone types and their uses

### **Audience:**

- Server administrators
- Network managers

- Cisco integrators and partners
- Data center administrators
- Data center engineers
- Systems engineers

## **Prerequisite:**

You should have the following knowledge and skills to fully benefit from this course:

- Good understanding of the VMware environment
- Basic knowledge of Microsoft Windows operating systems
- Good understanding of networking protocols

These Cisco courses are recommended to help you meet these prerequisites:

- Introducing Cisco Data Center Networking (DCICN)
- Introducing Cisco Data Center Technologies (DCICT)
- Implementing and Administering Cisco Solutions (CCNA)

## **Course Outline:**

### **Describing the Data Center Network Architectures**

Cisco Data Center Architecture Overview  
Three-Tier Network: Core, Aggregation, and Access  
Spine-and-Leaf Network  
Two-Tier Storage Network

### **Describing the Cisco Nexus Family and Cisco NX-OS Software**

Cisco Nexus Data Center Product Overview  
Cisco NX-OS Software Architecture  
Cisco NX-OS Software CLI Tools  
Cisco NX-OS Virtual Routing and Forwarding

### **Describing Layer 3 First-Hop Redundancy**

Default Gateway Redundancy  
Hot Standby Router Protocol  
Virtual Router Redundancy Protocol  
Gateway Load Balancing Protocol

### **Describing Cisco FEX**

Server Deployment Models  
Cisco FEX Technology  
Cisco FEX Traffic Forwarding  
Cisco Adapter FEX

## **Describing Port Channels and VPCs**

- Ethernet Port Channels
- Virtual Port Channels
- Supported VPC Topologies

## **Describing Switch Virtualization**

- Cisco Nexus Switch Basic Components
- Virtual Routing and Forwarding
- Cisco Nexus 7000 Virtual Device Contexts (VDCs)
- VDC Types
- VDC Resource Allocation
- VDC Management

## **Describing Machine Virtualization**

- Virtual Machines
- Hypervisor
- VM Manager

## **Describing Network Virtualization**

- Overlay Network Protocols
- Virtual Extensible LAN (VXLAN) Overlay
- VXLAN Border Gateway Protocol (BGP) Ethernet VPN (EVPN) Control Plane
- VXLAN Data Plane
- Cisco Nexus 1000VE Series Virtual Switch
- VMware vSphere Virtual Switches

## **Introducing Basic Data Center Storage Concepts**

- Storage Connectivity Options in the Data Center
- Fibre Channel Storage Networking
- Virtual Storage Area Network (VSAN) Configuration and Verification

## **Describing Fibre Channel Communication Between the Initiator Server and the Target Storage**

- Fibre Channel Layered Model
- Fabric Login (FLOGI) Process
- Fibre Channel Flow Control

## **Describing Fibre Channel Zone Types and Their Uses**

- Fibre Channel Zoning
- Zoning Configuration
- Zoning Management

## **Describing Cisco NPV Mode and NPIV**

- Cisco NPV Mode
- NPIV Mode

## **Describing Data Center Ethernet Enhancements**

- Institute of Electrical and Electronic Engineers (IEEE) Data Center Bridging
- Priority Flow Control
- Enhanced Transmission Selection
- Data Center Bridging Exchange (DCBX) Protocol
- Congestion Notification

## **Describing FCoE**

- Cisco Unified Fabric
- FCoE Architecture
- FCoE Initialization Protocol
- FCoE Adapters

## **Describing Cisco UCS Components**

- Physical Cisco UCS Components
- Cisco Fabric Interconnect Product Overview
- Cisco I/O Module (IOM) Product Overview
- Cisco UCS Mini
- Cisco Integrated Management Controller (IMC) Supervisor
- Cisco Intersight™

## **Describing Cisco UCS Manager**

- Cisco UCS Manager Overview
- Identity and Resource Pools for Hardware Abstraction
- Service Profiles and Service Profile Templates
- Cisco UCS Central Overview
- Cisco HyperFlex™ Overview

## **Using APIs**

- Common Programmability Protocols and Methods
- How to Choose Models and Processes

## **Describing Cisco ACI**

- Cisco ACI Overview
- Multitier Applications in Cisco ACI
- Cisco ACI Features
- VXLAN in Cisco ACI

Unicast Traffic in Cisco ACI  
Multicast Traffic in Cisco ACI  
Cisco ACI Programmability  
Common Programming Tools and Orchestration Options

## **Describing Cloud Computing**

Cloud Computing Overview  
Cloud Deployment Models  
Cloud Computing Services